WEST Search History

DATE: Thursday, June 27, 2002

Set Name side by side	Query	Hit Count	Set Name result set
DB=USPT; PLUR=YES; OP=ADJ			
L8	l2 and fie3	1	L8
L7	l5 and fertilization	14	L7
L6	L5 and fis3	0	L6
L5	L4 and seed	185	L5
L4	L3 and plant	1229	L4
L3	fertilization independent seed or fis	13835	L3
L2	L1 and plant	47	L2
L1	fie or fertilization independent endosperm	670	L1

END OF SEARCH HISTORY

WEST Search History

DATE: Thursday, June 27, 2002

Set Name side by side	Query	Hit Count	Set Name result set
DB=PGPB; PLUR=YES; OP=ADJ			
L7	L4 and fis3	0	L7
L6	L5 and fertiliz$	8	L6
L5	L4 and plant	108	L5
L4	fis or fertilization independent seed	1510	L4
L3	fie3	0	L3
L2	L1 and plant	1	L2
L1	fie or fertilization independent endosperm	29	L1

END OF SEARCH HISTORY

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NEWS  3  Jan 29  FSTA has been reloaded and moves to weekly updates
NEWS  4  Feb 01  DKILIT now produced by FIZ Karlsruhe and has a new update
                 frequency
NEWS  5  Feb 19  Access via Tymnet and SprintNet Eliminated Effective 3/31/02
NEWS  6  Mar 08  Gene Names now available in BIOSIS
NEWS  7  Mar 22  TOXLIT no longer available
NEWS  8  Mar 22  TRCTHERMO no longer available
NEWS  9  Mar 28  US Provisional Priorities searched with P in CA/CAplus
                 and USPATFULL
NEWS 10  Mar 28  LIPINSKI/CALC added for property searching in REGISTRY
NEWS 11  Apr 02  PAPERCHEM no longer available on STN.  Use PAPERCHEM2 instead.
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NEWS 15  Apr 19  US Patent Applications available in IFICDB, IFIPAT, and IFIUDB
NEWS 16  Apr 22  Records from IP.com available in CAPLUS, HCAPLUS, and ZCAPLUS
NEWS 17  Apr 22  BIOSIS Gene Names now available in TOXCENTER
NEWS 18  Apr 22  Federal Research in Progress (FEDRIP) now available
NEWS 19  Jun 03  New e-mail delivery for search results now available
NEWS 20  Jun 10  MEDLINE Reload
NEWS 21  Jun 10  PCTFULL has been reloaded

NEWS EXPRESS  February 1 CURRENT WINDOWS VERSION IS V6.0d,
              CURRENT MACINTOSH VERSION IS V6.0a(ENG) AND V6.0Ja(JP),
              AND CURRENT DISCOVER FILE IS DATED 05 FEBRUARY 2002
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FULL ESTIMATED COST                                         0.42        0.42

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=> s fie or fertilization independent endosperm
L1          164 FIE OR FERTILIZATION INDEPENDENT ENDOSPERM

=> s l1 and plant?
L2           44 L1 AND PLANT?

=> dup rem l2
PROCESSING COMPLETED FOR L2
L3            28 DUP REM L2 (16 DUPLICATES REMOVED)

=> d 1-10 ti

L3   ANSWER 1 OF 28  CAPLUS  COPYRIGHT 2002 ACS
TI   Polycomb genes from maize : ZMFIE2, its protein motif analysis and
     characterization

L3   ANSWER 2 OF 28  CAPLUS  COPYRIGHT 2002 ACS
TI   Plant fertilization-independent
     endosperm proteins and their cDNA and genomic sequences

L3   ANSWER 3 OF 28  CAPLUS  COPYRIGHT 2002 ACS
TI   A method for controlling endosperm size and development in transgenic
     plants with attenuating genomic imprinting

L3   ANSWER 4 OF 28  CAPLUS  COPYRIGHT 2002 ACS
TI   Genes FIE1 and FIE3 from Arabidopsis that control endosperm development in
     plants

L3   ANSWER 5 OF 28  CAPLUS  COPYRIGHT 2002 ACS        DUPLICATE 1
TI   Polycomb repression of flowering during early plant development

L3   ANSWER 6 OF 28  CAPLUS  COPYRIGHT 2002 ACS        DUPLICATE 2
TI   Polycomb group genes control pattern formation in plant seed

L3   ANSWER 7 OF 28  BIOSIS  COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
TI   Autonomous endosperm development in flowering plants: How to
     overcome the imprinting problem.

L3   ANSWER 8 OF 28  CAPLUS  COPYRIGHT 2002 ACS        DUPLICATE 3
TI   Genomic imprinting and seed development: Endosperm formation with and
     without sex

L3   ANSWER 9 OF 28  CAPLUS  COPYRIGHT 2002 ACS
TI   Transcriptional activator nucleic acids and polypeptides from
     plants

L3   ANSWER 10 OF 28  AGRICOLA                        DUPLICATE 4
TI   Expression and parent-of-origin effects for FIS2, MEA, and FIE
     in the endosperm and embryo of developing Arabidopsis seeds.
```

=> d 4 ab

L3 ANSWER 4 OF 28 CAPLUS COPYRIGHT 2002 ACS
AB The invention provides methods of controlling endosperm development in **plants**. Genetic mapping allows the genomic and cDNA sequencing of two genes, FIE1 and FIE3, that are involved in fruit and seed development from Arabidopsis thaliana.

=> d 4 pi

L3 ANSWER 4 OF 28 CAPLUS COPYRIGHT 2002 ACS

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6229064	B1	20010508	US 1998-177249	19981022
	CA 2330765	AA	19991111	CA 1999-2330765	19990503
	WO 9957247	A1	19991111	WO 1999-US9676	19990503
	W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	AU 9937833	A1	19991123	AU 1999-37833	19990503
	EP 1073718	A1	20010207	EP 1999-920305	19990503
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	JP 2002513561	T2	20020514	JP 2000-547203	19990503

=> d 5 ab

L3 ANSWER 5 OF 28 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 1
AB All **plants** flower late in their life cycle. For example, in Arabidopsis, the shoot undergoes a transition and produces reproductive flowers after the adult phase of vegetative growth. Much is known about genetic and environmental processes that control flowering time in mature **plants**. However, little is understood about the mechanisms that prevent **plants** from flowering much earlier during embryo and seedling development. Arabidopsis embryonic flower (emf1 and emf2) mutants flower soon after germination, suggesting that a floral repression mechanism is established in wild-type **plants** that prevents flowering until maturity. Here, we show that polycomb group proteins play a central role in repressing flowering early in the **plant** life cycle. We found that mutations in the **Fertilization Independent Endosperm** (**FIE**) polycomb gene caused the seedling shoot to produce flower-like structures and organs. Flower-like structures were also generated from the hypocotyl and root, organs not assocd. with reprodn. Expression of floral induction and homeotic genes was derepressed in mutant embryos and seedlings. These results suggest that **FIE**-mediated polycomb complexes are an essential component of a floral repression mechanism established early during **plant** development.

=> d 5 so

L3 ANSWER 5 OF 28 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 1
SO Proceedings of the National Academy of Sciences of the United States of

America (2001), 98(24), 14156-14161
CODEN: PNASA6; ISSN: 0027-8424

=> d 6 ab

L3 ANSWER 6 OF 28 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 2
AB A review and discussion with 28 refs. Transcriptional activators of the Trithorax group (TRX-G) and repressors of the Polycomb group (Pc-G) are involved in multiple aspects of embryogenesis in Drosophila and the mouse and appear to have a conserved role in the zygotic control of the development of the anterior-posterior axis. In the model **plant** Arabidopsis, three Pc-G genes have been isolated and characterized to date. CURLY LEAF (CLF) represses the expression of a floral homeotic gene in vegetative tissues but does not appear to have a role in **plant** embryogenesis. Two other Pc-G genes, FIS1/MEDEA and FIS3/**FIE**, have been characterized in studies of mutants that produce seeds in the absence of fertilization. Seeds resulting from autonomous development in fis mutants do not contain an embryo but only endosperm, the second product of double fertilization in flowering **plants**. Thus, FIS genes are considered to be repressors of endosperm development before fertilization. When fis ovules are fertilized, the endosperm patterning along the major polar axis is perturbed. Posterior structures develop in more anterior domains of the endosperm. This correlates with the ectopic expression of a posterior mol. marker. FIS genes appear to be potent regulators of the establishment of the anterior-posterior polar axis in the endosperm.

=> d 6 so

L3 ANSWER 6 OF 28 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 2
SO Current Biology (2001), 11(4), 277-281
CODEN: CUBLE2; ISSN: 0960-9822

=> d 7 ab

L3 ANSWER 7 OF 28 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AB In the vast majority of sexually reproducing flowering **plants**, a ratio of 2 maternally derived genomes to 1 paternally derived genome (2m:1p) is essential for normal endosperm development, and therefore ultimately for seed development. Even in many pseudogamous apomicts, where the embryo develops without a paternal contribution, fertilisation of the endosperm to obtain the correct 2m:1p parental ratio is still necessary. How do autonomous apomicts, where both embryo and endosperm develop autonomously, circumvent this requirement? The background for the 2m:1p requirement is that the parental genomes are epigenetically different; in either genome, a set of genes is silenced in a sex-specific way by genomic imprinting. Removal of the imprints from the maternally derived endosperm genome leads to expression of normally maternally silenced genes, and effectively supplies the missing paternal genome. In Arabidopsis, we propose that a combination of the **fie** mutation and hypomethylation of the genome creates such a situation in the endosperm genome. As a result, in a **fie** mutant, hypomethylated ovule complete autonomous endosperm development takes place in the absence of fertilisation.

=> d 8 ab

L3 ANSWER 8 OF 28 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 3
AB A review with 65 refs. During seed development, coordinated developmental programs lead to the formation of the embryo, endosperm and seed coat.

The maternal effects of the genes affected in the fertilization-independent seed class of mutants play an important role in seed development. The **plant** Polycomb proteins MEDEA and **FERTILIZATION-INDEPENDENT ENDOSPERM** phys. interact and form a complex, in a manner similar to that of their counterparts in animals. Maternal-effect phenotypes can result from regulation by genomic imprinting, a phenomenon of crit. importance for both sexual and apomictic seed development.

=> d 8 so

L3 ANSWER 8 OF 28 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 3
SO Current Opinion in Plant Biology (2001), 4(1), 21-27
CODEN: COPBFZ; ISSN: 1369-5266

=> d 9 ab

L3 ANSWER 9 OF 28 CAPLUS COPYRIGHT 2002 ACS
AB The invention provides isolated nucleic acids and their encoded proteins which act as transcriptional activators and methods of use thereof. The transcriptional activators (designated LEC1 or leafy cotyledon 1) are homologous to other **plant** Hap3-type ccaat-box transcriptional activators, and were detected from cDNA libraries from corn, poppy (Argemone mexicana), soybean, Veronica melissaefolia, and wheat. The invention further provides expression cassettes, transformed host cells, transgenic **plants** and **plant** parts, and antibody compns. These transcriptional activators are found to improve the transformation frequency in **plant** tissue cultures, induce somatic embryogenesis and apomixis, suppress **FIE** polycomb expression, and increase the recovery of regenerated **plants** from culture systems.

=> d 9 pi

L3 ANSWER 9 OF 28 CAPLUS COPYRIGHT 2002 ACS

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2000028058	A2	20000518	WO 1999-US26514	19991109
WO 2000028058	A3	20001012		
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
EP 1131454	A2	20010912	EP 1999-971859	19991109
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				

=> d 10 ab

L3 ANSWER 10 OF 28 AGRICOLA DUPLICATE 4
AB The promoters of MEA (FIS1), FIS2, and **FIE** (FIS3), genes that repress seed development in the absence of pollination, were fused to beta-glucuronidase (GUS) to study their activity pattern. The FIS2::GUS products is found in the embryo sac, in each of the polar cell nuclei, and in the central cell nucleus. After pollination, the maternally derived

FIS2::GUS protein occurs in the nuclei of the cenocytic endosperm. Before cellularization of the endosperm, activity is terminated in the micropylar and central nuclei of the endosperm and subsequently in the nuclei of the chalazal cyst. MEA::GUS has a pattern of activity similar to that of FIS2::GUS, but **FIE**::GUS protein is found in many tissues, including the prepollination embryo sac, and in embryo and endosperm postpollination. The similarity in mutant phenotypes; the activity of **FIE**, MEA, and FIS2 in the same cells in the embryo sac; and the fact that MEA and **FIE** proteins interact in a yeast two-hybrid system suggest that these proteins operate in the same system of control of seed development. Maternal and not paternal FIS2::GUS, MEA::GUS, and **FIE**::GUS show activity in early endosperm, so these genes may be imprinted. When fis2, mea, and **fie** mutants are pollinated, seed development is arrested at the heart embryo stage. The seed arrest of mea and fis2 is avoided when they are fertilized by a low methylation parent. The wild-type alleles of MEA or FIS2 are not required. The parent-of-orgin-determined differential activity of MEA, FIS2, and **FIE** is not dependent on DNA methylation, but methylation does control some gene(s) that have key roles in seed development.

=> d so

L3 ANSWER 1 OF 28 CAPLUS COPYRIGHT 2002 ACS
SO PCT Int. Appl., 53 pp.
CODEN: PIXXD2

=> d pi

L3 ANSWER 1 OF 28 CAPLUS COPYRIGHT 2002 ACS

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002006321	A2	20020124	WO 2001-US22254	20010716

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RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

=> d 11-20 ti

L3 ANSWER 11 OF 28 AGRICOLA DUPLICATE 5
TI Mutations in the **FIE** and MEA genes that encode interacting polycomb proteins cause parent-of-origin effects on seed development by distinct mechanisms.

L3 ANSWER 12 OF 28 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 6
TI Hypomethylation promotes autonomous endosperm development and rescues postfertilization lethality in **fie** mutants

L3 ANSWER 13 OF 28 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 7
TI Interaction of the Arabidopsis Polycomb group proteins **FIE** and MEA mediates their common phenotypes

L3 ANSWER 14 OF 28 CAPLUS COPYRIGHT 2002 ACS
TI cDNA molecules encoding Arabidopsis thaliana gene FIE1 and FIE3 proteins, their sequences and use in production of transgenic **plants** for modulating endosperm development

L3 ANSWER 15 OF 28 AGRICOLA DUPLICATE 8
TI Control of **fertilization-independent endosperm** development by the MEDEA polycomb gene in Arabidopsis.

L3 ANSWER 16 OF 28 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
TI Comparison of sodium uptake by and transport in detached **plant** parts among several crops.

L3 ANSWER 17 OF 28 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 9
TI Seed development: with or without sex?

L3 ANSWER 18 OF 28 AGRICOLA DUPLICATE 10
TI Mutations in **FIE**, a WD polycomb group gene, allow endosperm development without fertilization.

L3 ANSWER 19 OF 28 CAPLUS COPYRIGHT 2002 ACS
TI Shell side heat transfer characteristics to water flowing parallel with an eggcrate support plate

L3 ANSWER 20 OF 28 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
TI Control of **fertilization-independent endosperm** development by the **FIE** genes.

=> d 11 ab

L3 ANSWER 11 OF 28 AGRICOLA DUPLICATE 5

=> d 11 so

L3 ANSWER 11 OF 28 AGRICOLA DUPLICATE 5
SO The Plant cell, Dec 2000. Vol. 12, No. 12. p. 2367-2381
Publisher: [Rockville, MD : American Society of Plant Physiologists, c1989-
CODEN: PLCEEW; ISSN: 1040-4651

=> d 12 ab

L3 ANSWER 12 OF 28 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 6
AB In most flowering **plants**, fertilization is necessary for development of the central cell into endosperm, but in the **fie**-1 mutant of Arabidopsis, the central cell can proliferate autonomously. However, autonomous **fie**-1 endosperms do not develop completely: they have fewer nuclei than sexually produced endosperms, cellularization does not take place, and no clear distinction is seen between the different endosperm compartments. Here, the authors show that autonomous endosperm develops much further in hypomethylated than normally methylated **fie**-1 mutants, undergoing cellularization and regional specification to resemble endosperm in sexually produced wild-type seeds. Therefore, the combination of maternal hypomethylation and loss of **FIE** function enables formation of differentiated endosperm without fertilization. A maternal **fie**-1 mutation is also lethal to sexual seeds, even if the pollen donor is wild type. The authors report that sexual mutant **fie**-1 endosperms fail to cellularize and overproliferate, consistent with the hypothesis that embryo abortion may be due, at least in part, to a defect in endosperm development. Finally, it was shown that pollen from hypomethylated **plants** rescues **fie**-1 mutant seeds provided that it also donates a wild-type paternal **FIE** allele. These results are discussed in light of models for parent-of-origin effects on seed development.

=> d 12 so

L3 ANSWER 12 OF 28 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 6
SO Plant Cell (2000), 12(11), 2271-2282
CODEN: PLCEEW; ISSN: 1040-4651

=> d 13 avb
'AVB' IS NOT A VALID FORMAT
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or the STNGUIDE file for information on formats available in
individual files.
REENTER DISPLAY FORMAT FOR ALL FILES (FILEDEFAULT):ba
'BA' IS NOT A VALID FORMAT
In a multifile environment, a format can only be used if it is valid
in at least one of the files. Refer to file specific help messages
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L3 ANSWER 13 OF 28 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 7
AB Genes of the FERTILIZATION INDEPENDENT SEED (FIS) class regulate cell proliferation during reproductive development in Arabidopsis. The FIS genes **FERTILIZATION INDEPENDENT ENDOSPERM** (**FIE**) and MEDEA (MEA) encode homologs of animal Polycomb group (Pc-G) proteins, transcriptional regulators that modify chromatin structure and are thought to form multimeric complexes. To test whether similarities in fis mutant phenotypes reflect interactions between their protein products, the authors characterized **FIE** RNA and protein localization in vivo, and **FIE** protein interactions in yeast and in vitro. Expression of **FIE** mRNA overlaps with that of MEA during embryo sac and seed development and is unaffected in mea mutants. Results from the yeast two-hybrid system and an in-vitro pull-down assay indicate that MEA and **FIE** proteins interact. The relevance of this interaction in vivo is supported by the finding that **FIE** and MEA colocalize in the nucleus in transfected **plant** cells. Interaction of MEA and **FIE** is mediated by the amino-terminal region of MEA. Despite sequence divergence in this domain, MEA can interact with its corresponding animal partner Extrasexcombs (ESC) in the yeast two-hybrid system. Thus, **FIE** and MEA act together as part of a multimeric complex, and this accounts for the similarities in mutant phenotypes. It is proposed that an ancient mechanism for chromatin modification has been independently recruited to different developmental processes in the two kingdoms. Supplementary material is available at http://currentbiol.com/supmat/supmatin.htm.

=> d 13 so

L3 ANSWER 13 OF 28 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 7
SO Current Biology (2000), 10(23), 1535-1538
CODEN: CUBLE2; ISSN: 0960-9822

=> d 14 ab

L3 ANSWER 14 OF 28 CAPLUS COPYRIGHT 2002 ACS
AB The invention provides nucleic acid mols. (cDNA mols.) encoding Arabidopsis thaliana gene FIE1 (**FERTILIZATION-INDEPENDENT ENDOSPERM**-1) and FIE3 (**FERTILIZATION-INDEPENDENT ENDOSPERM**-3) proteins. The invention also provides the use of these cDNA mols. in construction of an expression

cassette used to produce transgenic **plants**. The expression cassette specifically contains a cDNA mol. (gene FIE1 or FIE3 encoding) operably linked to a **plant** promoter (such as gene FIE1 promoter) in an antisense orientation. The invention further provides a method of modulating endosperm development in a **plant** using the said expression cassette. The cDNA sequences as well as the corresponding amino acid sequences of gene FIE1 and FIE3 proteins are provided. The gene FIE3 proteins have homol. to the WD40 family of Polycomb gene proteins and in particular to the extra sex combs gene proteins in Drosophila. The gene FIE1 proteins have homol. to the SET family of Polycomb group gene proteins. The invention also provided the genomic DNA sequences of genes FIE1 and FIE3.

=> d 14 pi

L3 ANSWER 14 OF 28 CAPLUS COPYRIGHT 2002 ACS

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9957247	A1	19991111	WO 1999-US9676	19990503
	W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
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	US 6229064	B1	20010508	US 1998-177249	19981022
	CA 2330765	AA	19991111	CA 1999-2330765	19990503
	AU 9937833	A1	19991123	AU 1999-37833	19990503
	EP 1073718	A1	20010207	EP 1999-920305	19990503
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	JP 2002513561	T2	20020514	JP 2000-547203	19990503

=> d 14 in

L3 ANSWER 14 OF 28 CAPLUS COPYRIGHT 2002 ACS

IN Fischer, Robert L.; Ohad, Nir; Kiyosue, Tomohiro; Yadegari, Ramin; Margossian, Linda; Harada, John; Goldberg, Robert B.

=> d 15 ab

L3 ANSWER 15 OF 28 AGRICOLA DUPLICATE 8

AB Higher **plant** reproduction is unique because two cells are fertilized in the haploid female gametophyte. Egg and sperm nuclei fuse to form the embryo. A second sperm nucleus fuses with the central cell nucleus that replicates to generate the endosperm, a tissue that supports embryo development. To understand mechanisms that initiate reproduction, we isolated a mutation in Arabidopsis, f644, that allows for replication of the central cell and subsequent endosperm development without fertilization. When mutant f644 egg and central cells are fertilized by wild-type sperm, embryo development is inhibited, and endosperm is overproduced. By using a map-based strategy, we cloned and sequenced the F644 gene and showed that it encodes a SET-domain polycomb protein. Subsequently, we found that F644 is identical to MEDEA (MEA), a gene whose maternal-derived allele is required for embryogenesis [Grossniklaus, U., Vielle-Calzada, J.-P., Hoeppner, M. A. & Gagliano, W. B. (1998) Science 280,446-450]. Together, these results reveal functions for **plant** polycomb proteins in the suppression of central cell proliferation and

endosperm development. We discuss models to explain how polycomb proteins function to suppress endosperm and promote embryo development.

=> d 15 so

L3 ANSWER 15 OF 28 AGRICOLA DUPLICATE 8
SO Proceedings of the National Academy of Sciences of the United States of America, Mar 30, 1999. Vol. 96, No. 7. p. 4186-4191
Publisher: Washington, D.C. : National Academy of Sciences,
CODEN: PNASA6; ISSN: 0027-8424

=> d 17 ab

L3 ANSWER 17 OF 28 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 9
AB A review (dispatch) with 16 refs. In Arabidopsis, mutations in the genes **FIE**, FIS2 or MEDEA disrupt the normal dependence of seed development on fertilization. The products of these genes are similar to Polycomb group proteins, suggesting possible mechanisms for detg. whether seeds can be produced sexually or asexually.

=> d 17 so

L3 ANSWER 17 OF 28 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 9
SO Current Biology (1999), 9(17), R636-R639
CODEN: CUBLE2; ISSN: 0960-9822

=> d 18 ab

L3 ANSWER 18 OF 28 AGRICOLA DUPLICATE 10
AB A fundamental problem in biology is to understand how fertilization initiates reproductive development. Higher **plant** reproduction is unique because two fertilization events are required for sexual reproduction. First, a sperm must fuse. With the egg to form an embryo. A second sperm must then fuse with the adjacent central cell nucleus that replicates to form an endosperm, which is the support tissue required for embryo and/or seedling development Here, we report cloning of the Arabidopsis **FERTILIZATION-INDEPENDENT ENDOSPERM** (**FIE**) gene. The **FIE** protein is a homolog of the WD motif-containing Polycomb proteins from Drosophila and mammals. These proteins function as repressors of homeotic genes. A female gametophyte with a loss-of-function allele of **fie** undergoes replication of the central cell nucleus and initiates endosperm development without fertilization. These results suggest that the **FIE** Polycomb protein functions to suppress a critical aspect of early **plant** reproduction, namely, endosperm development, until fertilization occurs.

=> d 18 so

L3 ANSWER 18 OF 28 AGRICOLA DUPLICATE 10
SO The Plant cell, Mar 1999. Vol. 11, No. 3. p. 407-415
Publisher: [Rockville, MD : American Society of Plant Physiologists, c1989-
CODEN: PLCEEW; ISSN: 1040-4651

=> d 20 ab

L3 ANSWER 20 OF 28 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

=> d 20 so

L3 ANSWER 20 OF 28 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
SO Molecular Biology of the Cell, (Nov., 1998) Vol. 9, No. SUPPL., pp. 7A.
Meeting Info.: 38th Annual Meeting of the American Society for Cell Biology San Francisco, California, USA December 12-16, 1998 American Society for Cell Biology
. ISSN: 1059-1524.

=> d 21-28 ti

L3 ANSWER 21 OF 28 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
TI Contribution of chemical and isotopic tools to the identification of water salinization origins: The case of coastal Chaouia aquifer (Morocco.

L3 ANSWER 22 OF 28 AGRICOLA DUPLICATE 11
TI A mutation that allows endosperm development without fertilization.

L3 ANSWER 23 OF 28 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
TI Genetic analyses of Cochliobolus heterostrophus albino mutant with deficiencies at two loci.

L3 ANSWER 24 OF 28 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
TI A revision of some species in Lecanora sensu stricto with a dark hypothecium (Lecanorales, Ascomycotina.

L3 ANSWER 25 OF 28 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
TI Pear botryosphaeria canker in Taiwan.

L3 ANSWER 26 OF 28 AGRICOLA
TI First year vegetation recovery after a moor **fie** in the Hakkoda Mountains of northeastern Japan.

L3 ANSWER 27 OF 28 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
TI EFFECTS OF TEMPERATURE ON GROWTH OF SIX FOLIAGE **PLANTS**.

L3 ANSWER 28 OF 28 AGRICOLA
TI Influence of infestation with Gaeumannomyces graminis var. tritici Walk. on yield components and root growth in dependence on wheat **plant** developmental stages.
Einfluss eines Befalls durch Gaeumannomyces graminis var. tritici Walk. auf **fie** Ertragskomponenten und das Wurzelwaxhstum in Abhangigkeit von den Entwicklungsstadien der Weizenpflanze.

=> d 22 ab

L3 ANSWER 22 OF 28 AGRICOLA DUPLICATE 11
AB The mechanisms that initiate reproductive development after fertilization are not understood. Reproduction in higher **plants** is unique because it is initiated by two fertilization events in the haploid female gametophyte. One sperm nucleus fertilizes the egg to form the embryo. A second sperm nucleus fertilizes the central cell to form the endosperm, a unique tissue that supports the growth of the embryo. Fertilization also activates maternal tissue differentiation, the ovule integuments form the seed coat, and the ovary forms the fruit. To investigate mechanisms that initiate reproductive development, a female-gametophytic mutation termed **fie** (**fertilization-independent endosperm**) has been isolated in Arabidopsis. The **fie** mutation specifically affects the central cell, allowing for replication of the central cell nucleus and endosperm development without

fertilization. The **fie** mutation does not appear to affect the egg cell, suggesting that the processes that control the initiation of embryogenesis and endosperm development are different. **FIE/ fie** seed coat and fruit undergo fertilization-independent differentiation, which shows that the **fie** female gametophyte is the source of signals that activates sporophytic fruit and seed coat development. The mutant **fie** allele is not transmitted by the female gametophyte. Inheritance of the mutant **fie** allele by the female gametophyte results in embryo abortion, even when the pollen bears the wild-type **FIE** allele. Thus, **FIE** carries out a novel, essential function for female reproductive development.

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=> d 22 so

L3   ANSWER 22 OF 28  AGRICOLA                              DUPLICATE 11
SO   Proceedings of the National Academy of Sciences of the United States of
     America, May 28, 1996. Vol. 93, No. 11. p. 5319-5324
     Publisher: Washington, D.C. : National Academy of Sciences,
     CODEN: PNASA6; ISSN: 0027-8424


=> d fis or fertilization independent seed
'FIS' IS NOT A VALID FORMAT
'OR' IS NOT A VALID FORMAT
'FERTILIZATION' IS NOT A VALID FORMAT
'INDEPENDENT' IS NOT A VALID FORMAT
'SEED' IS NOT A VALID FORMAT
In a multifile environment, a format can only be used if it is valid
in at least one of the files.  Refer to file specific help messages
or the STNGUIDE file for information on formats available in
individual files.
REENTER DISPLAY FORMAT FOR ALL FILES (FILEDEFAULT):ti

L3   ANSWER 1 OF 28  CAPLUS  COPYRIGHT 2002 ACS
TI   Polycomb genes from maize : ZMFIE2, its protein motif analysis and
     characterization


=> s fis or fertilization independent seed
L4        1307 FIS OR FERTILIZATION INDEPENDENT SEED

=> s l4 and plant?
L5         169 L4 AND PLANT?

=> s l5 and fertilization
L6          26 L5 AND FERTILIZATION

=> dup rem l6
PROCESSING COMPLETED FOR L6
L7           20 DUP REM L6 (6 DUPLICATES REMOVED)

=> d 1-10 ti

L7   ANSWER 1 OF 20  CAPLUS  COPYRIGHT 2002 ACS
TI   Genomic imprinting during seed development

L7   ANSWER 2 OF 20  CAPLUS  COPYRIGHT 2002 ACS
TI   A method for controlling endosperm size and development in transgenic
     plants with attenuating genomic imprinting

L7   ANSWER 3 OF 20  BIOSIS  COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
TI   Control of early seed development.
```

L7 ANSWER 4 OF 20 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 1
TI Polycomb group genes control pattern formation in **plant** seed

L7 ANSWER 5 OF 20 CAPLUS COPYRIGHT 2002 ACS
TI Genomic imprinting and seed development: Endosperm formation with and without sex

L7 ANSWER 6 OF 20 CAPLUS COPYRIGHT 2002 ACS
TI Inducing parthenocarpic seed development by blocking expression of genes blocking asexual seed development

L7 ANSWER 7 OF 20 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 2
TI Interaction of the Arabidopsis Polycomb group proteins FIE and MEA mediates their common phenotypes

L7 ANSWER 8 OF 20 CAPLUS COPYRIGHT 2002 ACS
TI Multicolor fluorescence imaging of sugar beet leaves with different nitrogen status by flash lamp UV-excitation

L7 ANSWER 9 OF 20 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
TI Genetic structure in the nonrewarding, bumblebee-pollinated orchid Calypso bulbosa.

L7 ANSWER 10 OF 20 CAPLUS COPYRIGHT 2002 ACS
TI sequence of Arabidopsis thaliana seed development-specific polycomb group gene MEA with applications to control cell proliferation and modulate embryo and endosperm content

=> d 2 ab

L7 ANSWER 2 OF 20 CAPLUS COPYRIGHT 2002 ACS
AB A method for controlling endosperm size and development, and seed viability in **plants** is provided. The method employs nucleic acid constructs encoding proteins involved in genomic imprinting, in the prodn. of transgenic **plants**. The nucleic acid constructs can be used in the prodn. of transgenic **plants** to affect interspecific hybridization.

=> d 2 pi

L7 ANSWER 2 OF 20 CAPLUS COPYRIGHT 2002 ACS

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2001009299	A2	20010208	WO 2000-GB2953	20000731
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
EP 1204759	A2	20020515	EP 2000-949752	20000731
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL				

=> d 3 aB

L7 ANSWER 3 OF 20 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

=> d 3 so

L7 ANSWER 3 OF 20 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
SO Schekman, Randy [Editor]; Goldstein, Larry [Editor]; McKnight, Steven L. [Editor]; Rossant, Janet [Editor]. Annual Review of Cell and Developmental Biology, (2001) Vol. 17, pp. 677-699. Annual Review of Cell and Developmental Biology. print.
Publisher: Annual Reviews 4139 El Camino Way, Palo Alto, CA, 94303-0139, USA.
ISSN: 1081-0706. ISBN: 0-8243-3117-6 (cloth).

=> d 6 ab

L7 ANSWER 6 OF 20 CAPLUS COPYRIGHT 2002 ACS
AB The present invention provides a method of inducing seed development in **plants**, preferably in the absence of sexual **fertilization**, said method comprising inhibiting or preventing the expression of one or more regulatory polypeptides that otherwise prevent asexual seed development in **plants**. The invention further provides transformed **plants** having a wide range of novel phenotypes including, but not limited to, the ability to reproduce asexually, develop seed in the absence of **fertilization**, and the ability to produce parthenocarpic fruit or seedless fruit or fruits with soft seed traces such that the fruit are marketable as less seedy than wild-type fruit or seedless. The isolated nucleic acid mols. are further useful in the detection of proteins and genetic sequences which interact with the polypeptides encoded by said nucleic acid mols. in the regulation of seed development in **plants**. Three genes (FIS1, FIS2, and FIS3) of Arabidopsis thaliana that can induce seed formation in unfertilized male sterile, female fertile **plants** are identified by transposon mutagenesis. Genes having an effect on **fertilization** were screened using silique length as a marker. After chem. mutagenesis, six mutants showing effects on silique length in the absence of **fertilization** were obtained. Several co-dominant mutants with an autonomous partial seed phenotype were obtained. The FIS2 gene product was found to have sequence features typical of a transcription factor and may belong to the polycomb transcription factor family. FIS1 was found to be an allele of the MEDEA gene. Reporter gene expts. showed that the FIS1 and FIS2 promoters were regulated in parallel. The reporter activity was first seen in the female gametophyte before and after pollination. Expression was very strictly limited to the gametophyte. Two-hybrid expts. showed the FIS1, FIS2 and FIS3 products to form homodimers and heterodimers with one another. Sequenced claimed in the document were not published.

=> d 6 pi

L7 ANSWER 6 OF 20 CAPLUS COPYRIGHT 2002 ACS

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2000016609	A1	20000330	WO 1999-AU805	19990921
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
AU 9961824	A1	20000410	AU 1999-61824	19990921

EP 1115277 A1 20010718 EP 1999-948604 19990921
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO

=> d 10 ab

L7 ANSWER 10 OF 20 CAPLUS COPYRIGHT 2002 ACS
AB This invention relates to the isolation and characterization of a Polycomb gene from Arabidopsis with maternal control of embryogenesis. The novel gene and gene product may be used to manipulate embryo and endosperm cell proliferation for the generation of parthenocarpy, seed specific characteristics, inhibition of propagation of undesirable **plants** or apomixis in Arabidopsis and other **plant** types, to induce seed sterility or even to engineer the specific tissue and thus content of valuable components of seeds. Two mutations of this gene have also been identified which identify maternal effect embryo lethality. These results suggest that seed abortion in mea **plants** is not caused by haplo-insufficiency in the endosperm. Thus, mea either affects a maternally produced cytoplasmic factor deposited in egg and/or central cell, or disrupts an imprinted gene expressed from the maternal allele. Many mutated mea gene embryos growth to form seedlings with morphol. defects. It is concluded that mea is not required for post- embryonic growth and development and specifically affects seed development. MEA is first detectable in unpollinated siliques that contain matureing gametophytes indicating maternal expression. Subsequently, the transcript is present throughout the morphogenic phase of embryogenesis and starts to disappear during seed maturation.

=> d 10 pi

L7 ANSWER 10 OF 20 CAPLUS COPYRIGHT 2002 ACS

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 9953083	A1	19991021	WO 1999-US8257	19990415
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 6239327	B1	20010529	US 1998-61769	19980416
CA 2324376	AA	19991021	CA 1999-2324376	19990415
AU 9935631	A1	19991101	AU 1999-35631	19990415
EP 1071799	A1	20010131	EP 1999-917534	19990415
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				

=> d 11-20 ti

L7 ANSWER 11 OF 20 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
TI Genetic variability and structure of natural and domesticated populations of Caribbean pine (Pinus caribaea Morelet.

L7 ANSWER 12 OF 20 AGRICOLA DUPLICATE 3
TI Genes controlling **fertilization-independent seed** development in Arabidopsis thaliana.

L7 ANSWER 13 OF 20 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

TI Apomixis for crop improvement.

L7 ANSWER 14 OF 20 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
TI Variation in self-fertility, inbreeding depression and levels of inbreeding in four Cyclamen species.

L7 ANSWER 15 OF 20 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
TI How much genetic variation in fern populations is stored in the spore banks? A study of Athyrium filix-femina (L.) Roth.

L7 ANSWER 16 OF 20 AGRICOLA DUPLICATE 4
TI **Fertilization-independent seed** development in Arabidopsis thaliana.

L7 ANSWER 17 OF 20 CAPLUS COPYRIGHT 2002 ACS
TI Allozyme polymorphisms, outcrossing rates, and hybridization of South American Nothofagus

L7 ANSWER 18 OF 20 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
TI GENETIC CONSEQUENCES OF OUTCROSSING IN THE CLEISTOGAMOUS ANNUAL IMPATIENS-CAPENSIS I. POPULATION-GENETIC STRUCTURE.

L7 ANSWER 19 OF 20 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
TI SPATIAL GENETIC HETEROGENEITY IN A POPULATION OF THE MONTANE PERENNIAL **PLANT** DELPHINIUM-NELSONII.

L7 ANSWER 20 OF 20 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
TI Genetic variability in naturalised population varieties and mating system analysis of Juglans regia L. in Italy.

=> d 12 ab

L7 ANSWER 12 OF 20 AGRICOLA DUPLICATE 3
AB We have cloned two genes, FIS1 and FIS2, that control both **fertilization independent seed** development and postpollination embryo development in Arabidopsis. These genes confer female gametophytic phenotypes. FIS2 encodes a protein with a C2H2 zinc-finger motif and three putative nuclear localization signals indicating that it is likely to be a transcription factor. FIS1 encodes a protein with homology to the Drosophila Polycomb group gene Enhancer-of-zeste and is identical to the recently described Arabidopsis gene MEDEA. FIS1 is a protein with a number of putative functional domains, including the SET domain present in Enhancer-of-zeste related proteins. Comparison of the position of the lesions in the fis1 and medea mutant alleles indicates that fis1 is a null allele producing a truncated polypeptide lacking all the protein domains whereas the deduced protein from medea lacks only the SET domain. We present a model of the role of FIS1 and FIS2 gene products in seed development.

=> d 12 so

L7 ANSWER 12 OF 20 AGRICOLA DUPLICATE 3
SO Proceedings of the National Academy of Sciences of the United States of America, Jan 5, 1999. Vol. 96, No. 1. p. 296-301
Publisher: Washington, D.C. : National Academy of Sciences,
CODEN: PNASA6; ISSN: 0027-8424

=> d 13 ab

L7 ANSWER 13 OF 20 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AB Apomixis is a genetically controlled reproductive process by which embryos

and seeds develop in the ovule without female meiosis and egg cell **fertilization**. Apomixis produces seed progeny that are exact replicas of the mother **plant**. The major advantage of apomixis over sexual reproduction is the possibility to select individuals with desirable gene combinations and to propagate them as clones. In contrast to clonal propagation through somatic embryogenesis or in vitro shoot multiplication, apomixis avoids the need for costly processes, such as the production of artificial seeds and tissue culture. It simplifies the processes of commercial hybrid and cultivar production and enables a large-scale seed production economically in both seed- and vegetatively propagated crops. In vegetatively reproduced **plants** (e.g., potato), the main applications of apomixis are the avoidance of phytosanitary threats and the spanning of unfavorable seasons. Because of its potential for crop improvement and global agricultural production, apomixis is now receiving increasing attention from both scientific and industrial sectors. Harnessing apomixis is a major goal in applied **plant** genetic engineering. In this regard, efforts are focused on genetic and breeding strategies in various **plant** species, combined with molecular methods to analyze apomictic and sexual modes of reproduction and to identify key regulatory genes and mechanisms underlying these processes. Also, investigations on the components of apomixis, i.e., apomeiosis, parthenogenesis, and endosperm development without **fertilization**, genetic screens for apomictic mutants and transgenic approaches to modify sexual reproduction by using various regulatory genes are receiving a major effort. These can open new avenues for the transfer of the apomixis trait to important crop species and will have far-reaching potentials in crop improvement regarding agricultural production and the quality of the products.

=> d 13 so

L7 ANSWER 13 OF 20 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
SO Protoplasma, (1999) Vol. 208, No. 1-4, pp. 196-205.
ISSN: 0033-183X.

=> d 16 ab

L7 ANSWER 16 OF 20 AGRICOLA DUPLICATE 4
AB We report mutants in Arabidopsis thaliana (**fertilization-independent seed:fis**) in which certain processes of seed development are uncoupled from the double **fertilization** event that occurs after pollination. These mutants were isolated as ethyl methanesulfonate-induced pseudo-revertants of the pistillata phenotype. Although the pistillata (pi) mutant has short siliques devoid of seed, the **fis** mutants in the pi background have long siliques containing developing seeds, even though the flowers remain free of pollen. The three **fis** mutations map to loci on three different chromosomes. In fis1 and fis2 seeds, the autonomous endosperm nuclei are diploid and the endosperm develops to the point of cellularization; the partially developed seeds then atrophy. In these two mutants, proembryos are formed in a low proportion of seeds and do not develop beyond the globular stage. When **FIS/fis** **plants** are pollinated by pollen from **FIS/FIS** **plants**, approximately 50% of the resulting seeds contain fully developed embryos; these seeds germinate and form viable seedlings (**FIS/FIS**). The other 50% of seeds shrivel and do not germinate; they contain embryos arrested at the torpedo stage (**FIS /fis**). In normal sexual reproduction, the products of the **FIS** genes are likely to play important regulatory roles in the development of seed after **fertilization**.

=> d 16 so

L7 ANSWER 16 OF 20 AGRICOLA DUPLICATE 4
SO Proceedings of the National Academy of Sciences of the United States of America, Apr 15, 1997. Vol. 94, No. 8. p. 4223-4228
Publisher: Washington, D.C. : National Academy of Sciences,
CODEN: PNASA6; ISSN: 0027-8424

=> s fie3
L8 8 FIE3

=> dup rem l8
PROCESSING COMPLETED FOR L8
L9 5 DUP REM L8 (3 DUPLICATES REMOVED)

=> d 1-5 ti

L9 ANSWER 1 OF 5 CAPLUS COPYRIGHT 2002 ACS
TI Genes FIE1 and **FIE3** from Arabidopsis that control endosperm development in plants

L9 ANSWER 2 OF 5 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 1
TI Functional mapping of destabilizing elements in the protein-coding region of the Drosophila fushi tarazu mRNA

L9 ANSWER 3 OF 5 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 2
TI Developmental regulation of an instability element from the Drosophila fushi tarazu mRNA

L9 ANSWER 4 OF 5 CAPLUS COPYRIGHT 2002 ACS
TI cDNA molecules encoding Arabidopsis thaliana gene FIE1 and **FIE3** proteins, their sequences and use in production of transgenic plants for modulating endosperm development

L9 ANSWER 5 OF 5 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 3
TI Determinants of Drosophila fushi tarazu mRNA instability

=> d 1-5 ab

L9 ANSWER 1 OF 5 CAPLUS COPYRIGHT 2002 ACS
AB The invention provides methods of controlling endosperm development in plants. Genetic mapping allows the genomic and cDNA sequencing of two genes, FIE1 and **FIE3**, that are involved in fruit and seed development from Arabidopsis thaliana.

L9 ANSWER 2 OF 5 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 1
AB The instability of the fushi tarazu (ftz) mRNA is essential for the proper development of the Drosophila embryo. Previously, we identified a 201-nucleotide instability element (**FIE3**) in the 3' untranslated region (UTR) of the ftz mRNA. Here we report on the identification of two addnl. elements in the protein-coding region of the message: the 63-nucleotide-long FIE5-1 and the 69-nucleotide-long FIE5-2. The function of both elements was position-dependent; the same elements destabilized RNAs when present within the coding region but did not when embedded in the 3' UTR of the hybrid mRNAs. We conclude that ftz mRNA has three redundant instability elements, two in the protein-coding region and one in the 3' UTR. Although each instability element is sufficient to destabilize a heterologous mRNA, the destabilizing activity of the two 5'-elements depended on their position within the message.

L9 ANSWER 3 OF 5 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 2
AB The Drosophila fushi tarazu (ftz) mRNA is one of the shortest-lived

metazoan mRNAs, and its instability is crucial for proper development of the embryo. Previously, we identified two cis-acting elements that are required for ftz mRNA degrdn., one within the 5' one-third and another in the 3'UTR of the message. Here we focus on the 3'UTR element termed **FIE3** (ftz instability element in the 3'UTR). To investigate the developmental regulation of the **FIE3**-dependent degrading activity we measured the abundance of an **FIE3**-contg. mRNA in ovaries, unfertilized eggs, and different larval and adult tissues. We found that **FIE3**-degrading activity is present at all developmental stages and tissues examd., except in the ovary. Activation of the **FIE3**-dependent mRNA decay is independent of fertilization because it could be triggered by egg activation. Finally, we provide evidence that mutation of conserved elements within **FIE3** had no effect on mRNA instability.

L9 ANSWER 4 OF 5 CAPLUS COPYRIGHT 2002 ACS
AB The invention provides nucleic acid mols. (cDNA mols.) encoding Arabidopsis thaliana gene FIE1 (FERTILIZATION-INDEPENDENT ENDOSPERM-1) and **FIE3** (FERTILIZATION-INDEPENDENT ENDOSPERM-3) proteins. The invention also provides the use of these cDNA mols. in construction of an expression cassette used to produce transgenic plants. The expression cassette specifically contains a cDNA mol. (gene FIE1 or **FIE3** encoding) operably linked to a plant promoter (such as gene FIE1 promoter) in an antisense orientation. The invention further provides a method of modulating endosperm development in a plant using the said expression cassette. The cDNA sequences as well as the corresponding amino acid sequences of gene FIE1 and **FIE3** proteins are provided. The gene **FIE3** proteins have homol. to the WD40 family of Polycomb gene proteins and in particular to the extra sex combs gene proteins in Drosophila. The gene FIE1 proteins have homol. to the SET family of Polycomb group gene proteins. The invention also provided the genomic DNA sequences of genes FIE1 and **FIE3**.

L9 ANSWER 5 OF 5 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 3
AB The fushi tarazu gene is essential for the establishment of the Drosophila embryonic body plan. When first expressed, in early embryogenesis, fushi tarazu mRNA is uniformly distributed over most of the embryo. Subsequently, fushi tarazu mRNA expression rapidly evolves into a pattern of seven stripes that encircle the embryo. The instability of fushi tarazu mRNA is probably crucial for attaining this localized pattern of expression. The mRNA stability in transgenic embryos was measured by a new method that does not use drugs or external interference. Expts. using hybrid genes that fuse fushi tarazu sequences to those of the stable ribosomal protein A1 mRNA provide evidence for at least two destabilizing elements in the fushi tarazu mRNA, one located within the 5' one-third of the mRNA and the other near the 3' end (termed **FIE3** for ftz instability element 3'). The **FIE3** lies within a 201-nucleotide sequence just upstream of the polyadenylation signal and can act autonomously to destabilize a heterologous mRNA. Further deletion constructs identified an essential 68-nucleotide element within the **FIE3**. Lack of homol. between this element and other previously identified destabilization sequences suggests that **FIE3** contains a novel RNA destabilization element.

=> d pi

L9 ANSWER 1 OF 5 CAPLUS COPYRIGHT 2002 ACS

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6229064	B1	20010508	US 1998-177249	19981022
	CA 2330765	AA	19991111	CA 1999-2330765	19990503
	WO 9957247	A1	19991111	WO 1999-US9676	19990503

W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ,

DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS,
JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK,
MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ,
TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ,
MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK,
ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG,
CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

AU 9937833	A1	19991123	AU 1999-37833	19990503
EP 1073718	A1	20010207	EP 1999-920305	19990503
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
JP 2002513561	T2	20020514	JP 2000-547203	19990503

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